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APPENDIX 3

HYDRO GROUP AIR STRIPPING INSPECTION REPORTS

HYDRO GROUP®

ENVIRONMENTAL PRODUCTS DIVI

December 9, 1992

Mr. Brian Fitzgerald
City of Norwalk
First Taxing District Water Department
POB 27
3 Belden Avenue
Norwalk, CT 06857

Re: Tower Inspection at Layne-Dearing Well Field

Dear Mr. Fitzgerald:

Please find enclosed the introductory inspection report for the inspection services performed by Hydro Group, Inc. on October 14, 1992 for the Layne-Deering Well Field facility.

As indicated in the inspection report there were several items that were noted during inspection of the air stripping facility that should be monitored, specifically:

- The blower belts were loose and cracked.
- The tower internals -- packing, packing support tray, and sump bottom -- were coated with manganese.
- There was some pitting present on the tower sump bottom.

The blower belts should be replaced and the manganese build up monitored. To prevent further pitting from occurring in the air stripping tower, the pitted surfaces can be sandblasted and coated with a high build epoxy. Hydro Group, Inc. would be pleased to provide a proposal for the work to be done if you are interested.

In order to monitor the manganese coating on the tower internals for potential fouling problems and to keep up to date on the pitting of the tower floor, a follow-up inspection should be scheduled in six to twelve months. Attention to these problems would be in your best interest to insure the continuing smooth operation of your air stripping facility.

Thank you for your cooperation and assistance with this inspection.

Sincerely yours,

HYDRO GROUP, INC.
Environmental Products Division

Michelle D. Saczynski
Engineer

MDS/ycb
Enclosures
cc: Ken C. Gaynor

INSPECTION REPORT #2922-92-1

NORWALK, CT

ORIGINAL JOB NO. 2342-82

Prepared for

CITY OF NORWALK

FIRST TAXING DISTRICT WATER DEPARTMENT

Prepared By:

Hydro Group, Inc.
Environmental Products Division
97 Chimney Rock Road
Bridgewater, NJ 08807
(908) 563-1400

NOVEMBER, 1992

HYDRO GROUP, INC.
ENVIRONMENTAL PRODUCTS DIVISION
FIELD INSPECTION REPORT

REPORT #2922-92-1

SITE:	City of Norwalk, CT
FACILITY:	Layne-Dearing Well Field Tower
DATE OF INSPECTION:	October 14, 1992
INSPECTED BY:	Michelle D. Saczynski & Kimberlie Staheli
DATE OF REPORT:	December 9, 1992

INTRODUCTION

The referenced facility was inspected for the City of Norwalk First Taxing District Water Department as part of the operation and maintenance program for the treatment system. Inspection of the treatment system consisted of examining the following areas:

1) Packed Tower:

- interior through manways
- packed tower internals
- packing media
- exterior
- effluent sump

2) Blower

- speed, airflow, static pressure
- belts, motor and blade
- alignment
- connections
- air filters
- voltage and amperage draws

These items are described in the inspection log. Special conditions of operation are noted below, as well as conclusions and recommendations for future system operation.

HYDRO GROUP, INC.
INSPECTION REPORT

Performed for

City of Norwalk
First Taxing District Water Department

AIR STRIPPER

1. Were there any leaks in tower structure? **No**
2. Was there any buildup on the air discharge screens? **No**
3. Were there any leaks at tower body flanges, manways, piping or duct flanges? **No**
4. Was piping leaking, weathered or corroded? **No**
5. Was anchoring system secure? **Yes**
6. Were there any tears in blower ducts? **No**
7. Was all tubing, valves, and instrumentation in place? **Yes**
8. Were tower manways removed to inspect tower internals? **No**

   The bottom manway was not removed completely because there was no screen to retain the packing media.

9. Describe condition of internals, packing and shell:

   a. Bottom Manway

      The packing that was visible when the manway was partially opened had manganese staining.

   b. Tower Sump

      There was a uniform black coating on the bottom of the tower that extended about 2" up the tower wall. Visible through this coating were pits ranging from 1/4" to 1/2" wide and about 1/16" deep. The pitting action was not present on the tower wall. The packing on the support tray had a spotty manganese coating -- not all of the packing surfaces were coated.

BLOWER

1. Check blower rpm: **791 rpm** **Yes**
2. Check motor rpm: Rated - 1760 rpm; **Measured - 1778 rpm** **Yes**
3. Check blower motor amperage draw: **460 V** **Yes**
4. Check blower motor current draw: **25 A** **Yes**
5. Check blower belt for cracking, wear or stretch **Yes**

   Severe cracking in the belts was noted.

   Is belt suitable for continued operation? **No**

   Belts need to be replaced.

   Was belt adjusted, aligned, tightened or replaced? **No**

GENERAL

1. Check for loose bolts on body flanges, manway covers, blower mount, etc. Tighten if necessary **Yes**

2. Report any general comments regarding the packed column, blower, etc.
   Tower packing had manganese staining, but not enough to restrict water flow through the tower. The blower belts need replacing. Blower ductwork tight and in good condition.

3. Water quality data updated? **No**

INSPECTION DATE October 14, 1992

INSPECTOR(S) Michelle D. Saczynski & Kimberlie Staheli

INSPECTOR'S SIGNATURE Michelle D Saczynski

SUMMARY

1) Tower opened and inspected for fouling, manganese buildup noted.

2) Blower belt inspected, and founded to be cracked and loose.

3) Slight pitting on tower floor.

4) Manway gasket in good condition.

RECOMMENDATION

1) **Schedule a follow-up inspection to monitor the manganese deposition for potential packing fouling problems and to track the pitting taking place in the tower basin.**

2) **Replace the blower belts.**

3) **If you wish to take action on the pitting in the tower sump, sandblast the pitted surfaces on the tower sump bottom and coat with a high build epoxy. If coating is put off for now, it is strongly recommended that the tower be re-examined in 6 to 12 months to evaluate if changes in the pitting corrosion have occurred.**

PHOTO DESCRIPTIONS

1) **Packing support Tray -- note the non-uniform black manganese stains on the support tray and the packing visible an the support tray.**

2) **Tower Basin -- note the silver colored pits visible through the uniform manganese coating on the bottom of the sump.**

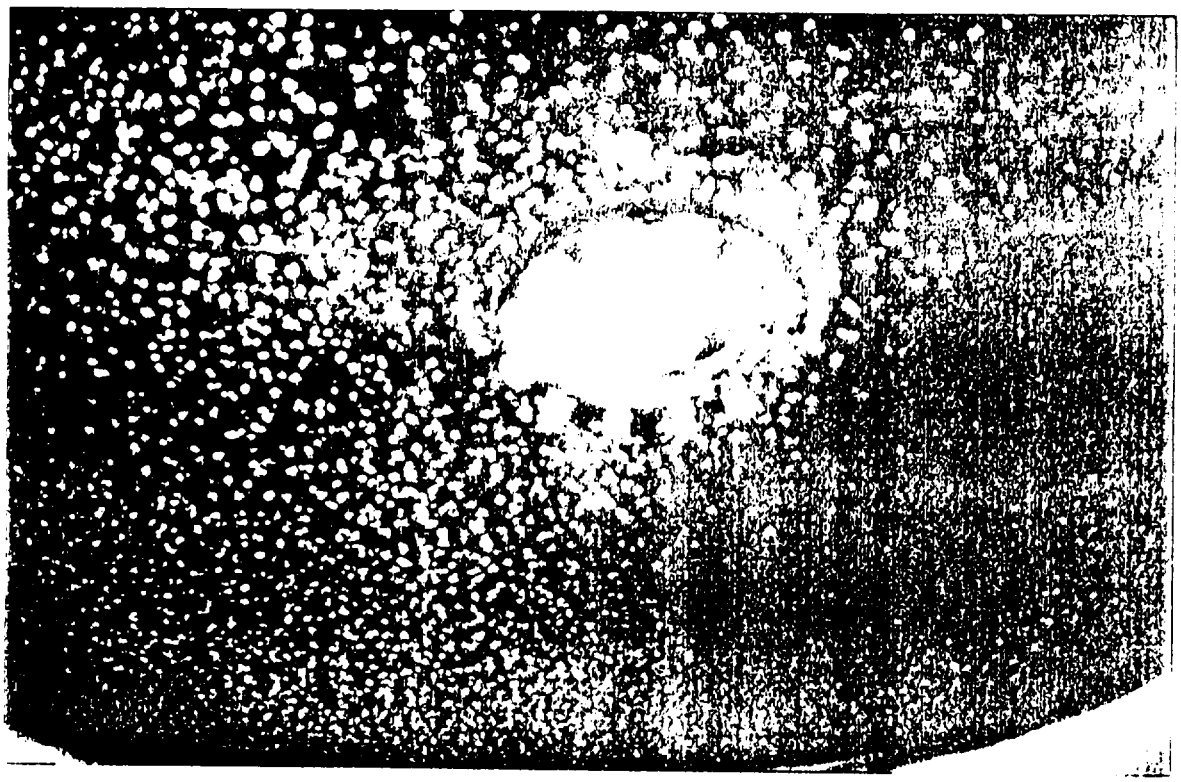


Photo #1

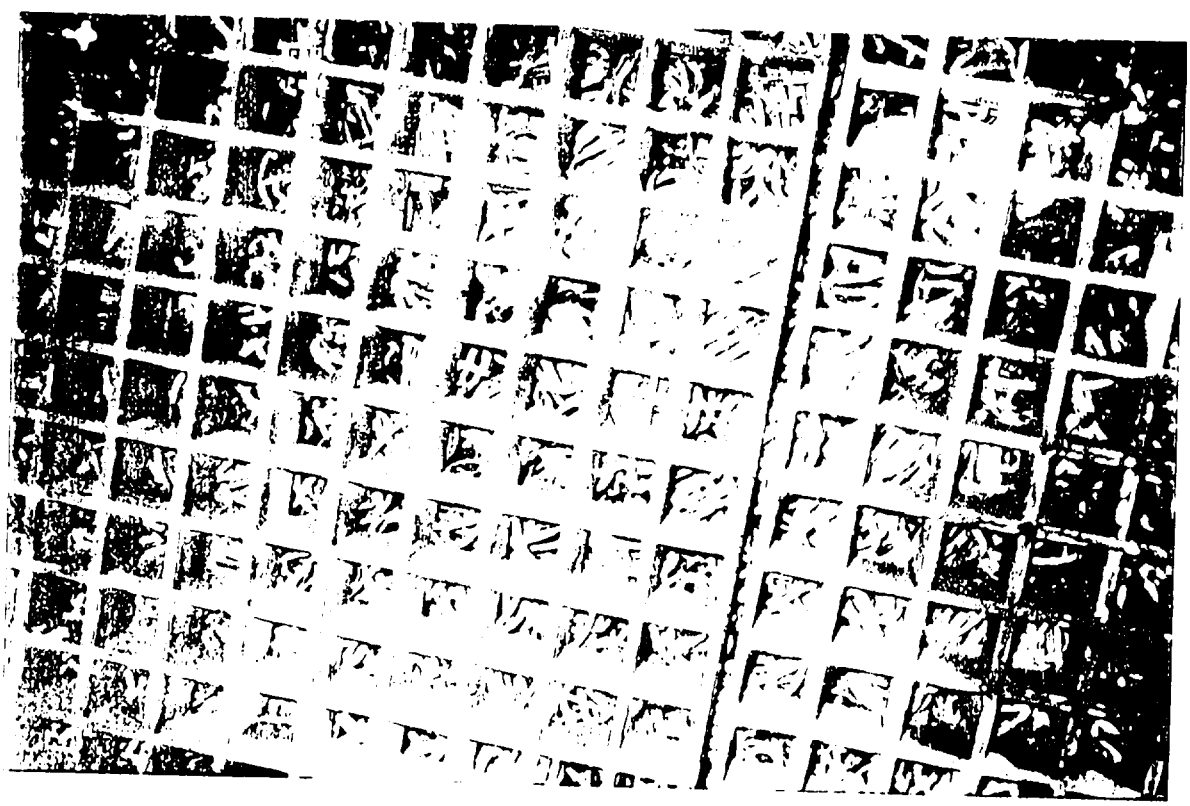


Photo #2

AIR STRIPPING SYSTEM INSPECTION REPORT

 # 3105-95-1

NORWALK, CT SITE

ORIGINAL JOB # 2342-82

PREPARED BY:

HYDRO GROUP, INC.
ENVIRONMENTAL PRODUCTS DIVISION
CHIMNEY ROCK ROAD
BRIDGEWATER, NJ 08807
908-563-1400
MAY, 1995

Fax 732-563-1396
John Balla

2-5

AIR STRIPPING SYSTEM INSPECTION REPORT
REPORT # 3105-95-1

SITE:	Norwalk, CT
FACILITY:	Deering Well Field
DATE OF INSPECTION:	04/25/95
INSPECTOR:	Kenneth Wigg
DATE OF REPORT:	May 2, 1995

INTRODUCTION

The referenced facility was inspected for Norwalk, CT as part of the operation and maintenance program for the water treatment system. Inspection of the treatment system consisted of examining the following areas:

SYSTEM EQUIPMENT:

1) Packed Tower
   - tower shell
   - tower foundation and clearwell
   - internals

2) Blower
   - speed, airflow, static pressure
   - voltage and amperage draws
   - belts, motor and blade
   - sheave alignment
   - connections

SYSTEM PERFORMANCE:

Water and air flow rate measurements were taken and compared to original system design parameters.

These items are described in the inspection log. Special conditions of operation are noted below, as well as conclusions and recommendations for future system operation.

AIR STRIPPING SYSTEM INSPECTION REPORT

Performed for
Deering Well Field
Norwalk, CT

SYSTEM EQUIPMENT

AIR STRIPPING TOWER SHELL	
1. Were the tower structures free of leaks?	YES
2. Were air outlet screens clean and unobstructed?	YES
3. Were manways, tower body flanges, piping, and duct flanges free of leaks? If no, describe: **The upper body flange leaked at a high flow rate of 4.9 MGD.**	NO
4. Were the manway and body flange bolts tight?	YES
5. Were there any signs of corrosion? If yes:	YES
a. Where? **Sump floor and distributor tray *.**	
b. Type: **Sump Floor - Exfoliation**	
c. Pit Depth: **Sump Floor - 1/32"**	
d. Number of pits per unit area: **Sump Floor - 2 per square inch**	

* Distributor tray pits could not be measured.

TOWER FOUNDATION/CLEARWELL	
1. Was anchoring system secure?	YES
2. Was tower level?	YES
3. Was tower foundation intact?	YES

PIPING AND DUCTWORK	
1. Was piping free of leaks and/or corrosion?	YES
2. Were blower ducts intact and free of tears?	YES
3. Were flanged connection bolts tight?	YES
4. Check / replace any gasket material if necessary?	YES/ checked

BLOWER AND ACCESSORIES	
1. Were blower supports and housing free of corrosion and tight?	YES
2. Were air inlet screens clean and unobstructed?	YES
3. Were blower belts in good operational condition?	YES

AIR STRIPPING TOWER INTERNALS	
1. Manways removed to inspect tower internals?	YES
2. Check/replace any gasket material if necessary?	YES/ checked

Describe condition of internals, packing and shell:

a. Manway # 1 (location: Top of Air Stripping Tower)

Manway #1 allowed access to the area above the mist eliminator. The mist eliminator was shifted out of the way to inspect the distributor tray surface and the top of the packed bed. The distributor tray and visible packing were slightly stained black with manganese oxide. No heavy build-up was evident. There were some pit formations present on the distributor tray surface.

b. Manway # 2 (location: Bottom of Packed Bed)

Since there was no packing retaining screen over the manway, the cover was only cracked open. From that view the packing appeared to be slightly stained with manganese oxide.

c. Tower Sump (Accessed through air duct)

Pits were noted on the sump floor (see page 3). The packing visible on the support plate and the sump floor were stained with manganese oxide.

GENERAL:

General comments on equipment condition.

The system equipment was in overall good condition. The tower connections were tight and free of leaks, with the exception of the upper body flange; the flange leaked at high water flow rates. There were some pits present on the distributor tray and sump floor surfaces, however the pits appeared to be unchanged from the last inspection in 1993.

INSPECTION DATE: **04/25/95**

INSPECTOR: **Kenneth Wigg**

INSPECTOR'S SIGNATURE 

INSPECTION SUMMARY

BLOWER PERFORMANCE	Rated	Measured
1. Blower RPM	795	810-820
2. Motor RPM	1,765	1,760
3. Motor Amperage Draw: AMPS	48/24	22
4. Motor Voltage	230/460	490
5. Motor HP	20	18.6
6. Blower Airflow Rate: CFM (Determined from manufactures fan curves.)	23,400	24,000
7. Static Pressure: inches of water column	4.0	3.9
8. Static Pressure across packing: in. w.c.	2.63	2.4
9. Are blower belts suitable for continued use?	Yes	
10. Are shaft, motor and sheave(s) aligned?	Yes	

SYSTEM EQUIPMENT SUMMARY	
EQUIPMENT COMPONENT	COMMENTS
Tower Shell	**Excellent condition, with the exception of some pits on the distributor tray and tower sump floor.**
Tower Internals	**Good condition. There were some manganese oxide stains on the visible packing surfaces and tower sump floor.**
Piping and Ductwork	**Excellent condition.**
Blower and Accessories	**Good condition.**

SYSTEM PERFORMANCE SUMMARY		DESIGN	MEASURED *
1)	Water flow (gpm):	1,750	1,425-3,400
2)	Air flow (cfm):	23,400	25,000-22,000
3)	Static pressure (in. w.c.):	4.0	3.7-4.8

* **With four wells on: 3,403 gpm → s.p. = 4.8", Amp Draw = 20A**
With three wells on: 3,055 gpm → s.p. = 4.7", Amp Draw = 20 A
With two wells on: 2,013 gpm → s.p. = 4.3", Amp Draw = 21 A
With one well on: 1,425 gpm → s.p. = 3.8", Amp Draw = 22 A

RECOMMENDATIONS

The air stripping system was in excellent condition. Three minor problems were noted during the inspection. They were as follows:

1. Leaking upper body flange at high water flow rates.
2. Manganese oxide stains on the visible packing and sump floor.
3. Pit formations on the distributor tray and sump floor.

To prevent the upper body flange from leaking, the gasket material can be replaced. Hydro Group, Inc. can provide you with a quote to do this maintenance work if you are interested.

An annual inspection program is recommended to monitor the manganese deposition and the pit formations for potential problems.

PHOTO DESCRIPTIONS

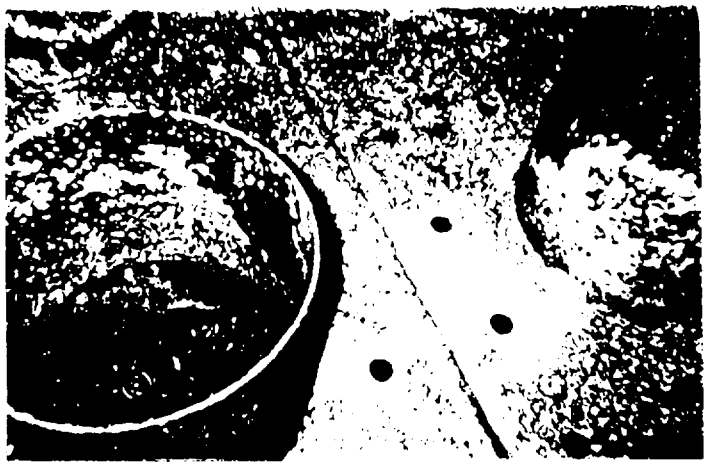
1. Distributor Tray and Top of Packed Bed - Note the dark manganese oxide stains on the tray and packing surfaces, and the light colored pit formations on the tray.

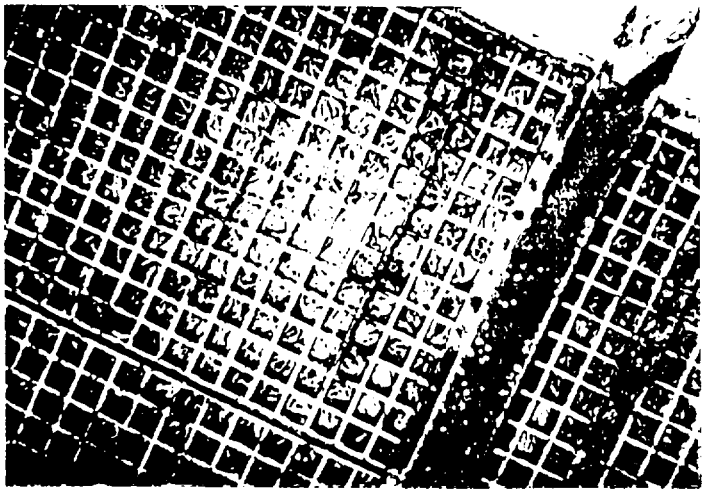
2. Bottom of Packed Bed - Note the dark colored manganese oxide stains on the support plate and packing.

4. Tower Sump - Note the light colored pit formations on the sump floor.

File # 95000264

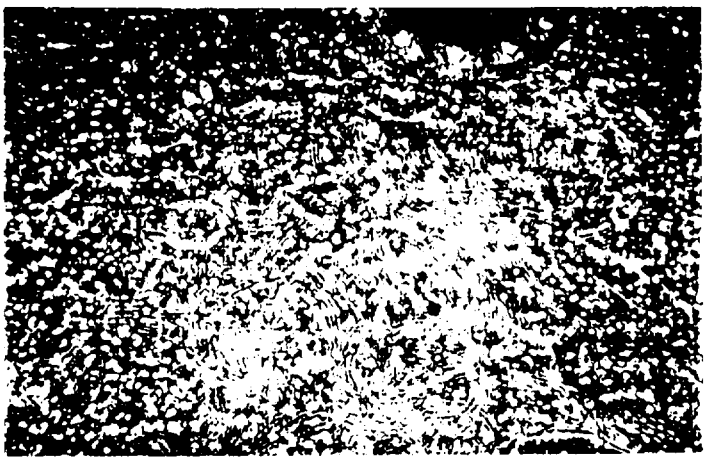
Photo 1 ->





<- Photo 2

Photo 3 ->



APPENDIX 4

DPH INSPECTION REPORTS

mailed 12/24

STATE OF CONNECTICUT

DEPARTMENT OF HEALTH SERVICES

December 24, 1992

Mr. Brian A. Fitzgerald
Norwalk First District Water Department
3 Belden Avenue, P.O. Box 27
Norwalk, CT 06852

Subject: Distribution Inspection Report

Dear Mr. Fitzgerald:

The Department conducted an inspection of the Norwalk First District Water Department's (NFDWD) distribution on September 16, 1992. The inspection was conducted with Fred Petrini of NFDWD.

Based on the inspection and a review of the Department's files the following conclusions and recommendations have been rendered:

1) The Filbert Street, Bayne Street, and Spring Hill tanks have recently been painted. NFDWD is requested to forward information on the interior paint products used and the dates when these projects were completed.

2) The overflow on the West Rocks elevated tank must be screened.

3) NFDWD should inspect all tank overflows and vents to verify that they are appropriately screened or equivalently protected.

4) A chlorine treatment system is used at the Spring Hill pump station to boost chlorine levels in the associated high service area. NFDWD should indicate the normal feed rates (i.e. ppm) of chlorine for this station. NFDWD should also indicate if a flow switch is used to control the chemical feed pump on and off, as is stated in the attached Department's policy.

5) An update on the present operation of the Silvermine Crossing's water supply arrangement with NFDWD should be forwarded to this office.

6) A brief outline of NFDWD's flushing program should be sent to this office.

7) At the time of inspection it was indicated that new pumps are planned to be installed at the Spring Hill pump station. The Department should be notified when the project is completed and of the operational discharge capacities of the new pumps.

Phone 566-1253
150 Washington Street • Hartford, Connecticut 06106

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH AND ADDICTION SERVICES

NAME: Mr. Brian Fitzgerald DATE: August 8, 1995

ADDRESS: P.O. Box 27, 3 Belden Avenue
Norwalk, CT 06856

UTILITY: Norwalk First Taxing District TOWN: Norwalk

(X) For your information.

( ) Please note special recommendations.

( ) Resampling requested.

(X) For necessary action.

(X) Remarks. The Norwalk First Taxing District is urged to review and implement the items stated in the attached inspection report. A written response addressing each item and indicating dates of implementation must be submitted to this office before September 30, 1995.

H. C. Adams

Henry C. Adams
Sanitary Engineer 3
Water Supplies Section

HA/sr
wp51/inspect

cc: Timothy Callahan, Norwalk Director of Health
Judith Sartucci, DPH LHA

Phone: (203) 240-9262
Telephone Device for the Deaf (203) 566-1279
150 Washington Street — Hartford, CT 06106
An Equal Opportunity Employer

August 8, 1995

SUBJECT: NORWALK, CT: INSPECTION OF THE NORWALK FIRST TAXING DISTRICT PUBLIC WATER SYSTEM ON 3/22/95 & 4/5/95.

Brian Fitzgerald
P.O. Box 27
3 Belden Avenue
Norwalk, CT 06856
cc: Timothy Callahan
Norwalk DOH

From: Sheryl C. Robbins SCR
Sanitary Engineer 2
Water Supplies Section

Inspected with: William Lahey and Franco Chieffalo

DESCRIPTION OF FILTRATION PLANT AND TREATMENT FACILITIES

The facility is located at Valley Road in New Canaan and has a maximum design flow rate of 7.2 million gallons per day (MGD). At the time of inspection approximately 6.6 MGD from Milne Lake was being treated.

The sources of supply for this facility consist of Scotts Reservoir, Browns Reservoir, John D. Milne Lake, and Grupes Reservoir arranged in a north to south series, respectively. Grupes Reservoir presently was not being used, but is the facility's second distribution reservoir from which water can flow into the facility. The safe yield of these sources, as indicated in the Norwalk First Taxing Department's (NFTD) 1994 water supply plan is 4.0 MGD.

The treatment process at the time of inspection consisted of: chemical pre-treatment with Polyaluminum Chloride (PACl); rapid mixing in two parallel basins having paddle mixers; flocculation in two parallel baffled basins; sedimentation in two parallel settling tanks containing baffles in the center section and parallel plate settling grids in the discharge end; Magnifloc injection after sedimentation; filtration in four parallel mixed media filters (20" anthracite, 10" sand, & 10" gravel); chemical post-treatment with fluoride (hydrofluosilicic acid), chlorine gas, caustic (sodium hydroxide), and zinc orthophosphate; followed by storage in a 0.75 MG clearwell. The water flow through this treatment process is by gravity. Backwashing lasts 9-10 minutes and is done every 22 hours or if breakthrough occurs. The filters are drained each month to inspect for mudballing or other signs of filter problems. The media life is 7-9 years.

Additional treatment not in use during the inspection , nor has it been used for many years, is the dry chemical addition of carbon.

The treatment facility is equipped with two parallel pumps, rated at approximately 350 gpm, for transferring water from the clearwell to a 110,000 gallon backwash storage tank. This tank is located on the hill behind the facility to supply the necessary elevation head to permit backwashing of the filters by gravity. Backwash water and all wastewater generated at this facility enters a gravity sewer main for transmission to a Norwalk sewage treatment plant. A second pair of parallel pumps is located at this facility for pumping water from the clearwell to the building's hydropneumatic system which has two tanks approximately 400 gallons each. The final set of pumps at this facility is for boosting flows to the distribution system. These booster pumps are rated at 1 pump = 4.8 MGD, 2 pumps = 5.6 MGD, 3 pumps = 6.8 MGD, or the 4th pump alone = 8.0 MGD. Two automatically starting generators are available at this facility, each having the capability to run all operations.

A booster station is located downhill of this facility for supplying approximately 60 homes in New Canaan. This station is equipped with two parallel variable speed pumps, in order to maintain pressure, since there is no distribution storage.

DESCRIPTION OF WELL FIELD AND TREATMENT FACILITIES

The NFTD's Kellogg-Deering well field is located between Spring Hill Avenue and the Norwalk River. The well field facilities consist of 4 active wells (i.e. Layne 1R-L1R, Layne 2-L2, Deering 1-D1, Deering 2-D2), 2 abandoned wells (i.e. Smith caisson and the Layne 1-L1), a packed column aeration tower, 750,000 gallon inground concrete clearwell, pump station, and treatment station.

The 4 active wells are manually controlled at the well field to pump into the top of the aeration tower. Water flows by gravity through the aeration tower to the 750,000 gallon clearwell. The pump station is located on top of the clearwell and consists of 3 parallel transfer pumps (i.e. 2-1.8 MGD and 1-2.5 MGD) and controls. The transfer pumps are controlled at the filter plant (can be manually overridden at the well field) to pump water through the well field's treatment station and into the distribution system. In the treatment station the water main discharging to the distribution system is injected with chlorine, hydrofluosilicic acid, and zinc orthophosphate. Also located in the treatment station are the controls for the wells, a venturi meter used to measure the well field's production and to pace the proportional flow chemical fee pumps, 2 diesel generators which would power all the equipment in the wellfield with the exception of wells D1 and D2, and pH adjustment equipment (sodium hydroxide) which presently is not used.

DESCRIPTION OF DISTRIBUTION SYSTEM AND TREATMENT FACILITIES

The distribution system is divided into three pressure zones. The West Rocks High Service area consists of the West Rocks booster pump station, the Silvermine Crossing booster pumps, the West Rock elevated tank, and the Bayne Street standpipe. The main low pressure zone is served by the Filbert Street tank and the Spring Hill standpipe. The Spring Hill High Service area consists of the Spring Hill booster pump station with chlorination and the Spring Hill elevated tank.

WATER QUALITY

There were no water samples collected at the NFTD system at the time of inspection. Based on results of water samples for the past year, the water is of good quality and meets the current State and Federal Standards for all parameters tested, except for distribution lead and copper.

The Lead Action Level was exceeded during the January - June 1993 monitoring period. NFTD has complied with all requirements to date and altered the chemical treatment (Shan-no-Cor dosage). The first follow-up monitoring results indicate the new treatment is working (Lead 90% = 0.010 mg/l).

The 5/17/95 raw water analyses for active wells D1, D2, L1R, and L2 indicate levels of trichloroethylene in excess of the maximum contaminant level (MCL) of 5 ug/l. In addition cis-1,2-dichloroethylene, 1,1,1-trichloroethane, 1,1-dichloroethylene, tetrachloroethylene, and 1,1-dichloroethane have been detected. The aeration tower removes these compounds down to non-detectable limits based on current quantification levels.

CONCLUSIONS AND RECOMMENDATIONS

FILTRATION PLANT AND TREATMENT FACILITIES

1. The filter plant was treating approximately 6.6 MGD at the time of the inspection. The NFTD's Water Supply Plan indicates a safe yield of 4.0 MGD of the sources supplying the filter plant. Please submit an explanation of NFTD's position on this overdrafting of the resources.

2. The opening near the ceiling in the hallway/chlorination room wall must be sealed to prevent chlorine gas from entering the treatment facility in the event of a leak.

3. NFTD must seal the hatch to the filter plant clearwell in accordance with the Connecticut Public Health Code (PHC) Section 19-13-B102(f)(3). There was a hole in the hatch next to the float gauge opening through the hatch.

4. NFTD must repair and properly screen the broken vents for the filter plant clearwell and backwash storage tanks to prevent entrance of surface water runoff, insects, and debris in accordance with PHC Section 19-13-B102(f)(3).

5. NFTD must remodel the hard-plumbed make-up water line for the phosphate treatment in the filter plant with an adequate air gap to prevent back-siphonage in accordance with PHC Section 19-12-B38b.

6. The bulk storage fill lines at the filter plant warehouse were not locked. These should be locked to prevent unauthorized entrance or tampering to the chemical storage tanks and treatment of the water.

7. NFTD should provide containment at the bulk storage fill lines to trap accidental spills or overflows.

8. The entrance to the chlorination room at the filter plant has been relocated as approved by this Department. The exhaust fan in the chlorination room should turn on in conjunction with the light switch or the opening of the entrance door. This recommendation was presented in the 5/1/90 inspection report.

9. All chemical injection lines and tanks should be labelled with the chemical contained in them. (i.e. Alum was replaced with Polyaluminum Chloride)

10. This Department recommended the installation of deadman valves or other mechanisms on all day tanks to prevent overflow. NFTD has installed high level alarms on all day tanks to alert the operators to any potential overflow.

WELL FIELD AND TREATMENT FACILITIES

11. NFTD must seal the Well L1R well cap (where the pressure gauge enters the well) in accordance with PHC Section 19-13-B51j.

12. NFTD must extend the end of the sump discharge lines at Wells D1 and L2 to at least 50' from the well to meet the minimum separating distance required from surface water in accordance with PHC Section 19-13-B51d.

13. NFTD must screen the Well L2 pit vent in accordance with PHC Section 19-13-B51i.

14. NFTD should provide secondary containment for the zinc orthophosphate day tank at the wellfield treatment plant.

15. Each blowoff for the wells have a clapper on the discharge near the Norwalk River. NFTD should consider altering the discharge end to prevent entry of river water into the lines when the river level rises.

16. Temporary threaded taps were installed to facilitate testing for Groundwater Under Direct Influence of Surface Water. If these taps are not removed upon completion of the tests, they should be replaced with smooth, threadless, chrome-plated sample taps or hose bibb vacuum breakers should be installed. The taps should be at least 12 inches off the ground floor, pointed downward, and clear of any obstructions.

DISTRIBUTION SYSTEM AND TREATMENT FACILITIES

17. NFTD must routinely inspect all storage tank overflows and vents to verify that they are screened and protected in accordance with PHC Section 19-13-B102(f).

18. NFTD must continue to periodically flush the distribution system to maintain it free from sediment and other matter in accordance with PHC Section 19-13-B102(f)(5).

19. Representative weekly meter readings of instantaneous flow rate and total quantity of water must be recorded in accordance with PHC Section 19-13-B102(n).

20. The West Rocks elevated tank and the Bayne Street standpipe showed evidence of some rusting on the exterior surface. The Filbert Street tank paint was peeling and mildew/dirt was evident on the tank exterior surface. These tanks should be inspected to determine the integrity of the tank materials and repaired as necessary.

21. One riser base of the Filbert Street tank was cracked at the time of the inspection. NFTD must inspect the base to determine the integrity of the support and repair as necessary.

22. This Department recommended flow totalizing meters be installed at all active interconnections with the Bridgeport Hydraulic Company and the Norwalk Second Taxing District Water Department in the 5/1/90 inspection report. Please verify the status of the meter installations.

23. Consumption of 164 gpd per customer seems excessive. Please provide an explanation for this high consumption rate.

In general, the system appears to be in fair condition. Mr. Lahey and Mr. Chieffalo were very knowledgeable and cooperative. Items #2-#5, #11-#13, and #17 listed in this report must be corrected immediately. A written response to the items listed in this report must be submitted before September 30, 1995.

NSPECTION OF PUBLIC WATER SUPPLY DATE: [illegible]

NAME OF UTILITY: Norwalk First Taxing District

INSPECTED WITH: Bill Lahney & Franco Chieffalo INSPECTED BY: S Ronan

SOURCE INFORMATION

SYSTEMATIC FLUSHING: Annually in spring INTERCONNECTIONS: BHC Norwalk Second Tax Dist

SOURCE	COMMENTS	WELL			SURFACE STORAGE (MG)	pumping capacity (GPM)	safe yield (GPD)	distance to nearest source of pollution	type of pollution
		metered	type	diameter	depth				
Scott's Reservoir	Storage				55.7				
Broad Reservoir	Storage				290.4		140 M		
John L Milne Lake	Distribution				54.4				
Gruper Reservoir	Distrib – Not in use				53.95				
L1 R - Layne 1 - Replacement	Active - Middle Grade	YES ?	Gravel Packed 24"	16"	87'	1320	1000 GPM	≈ 200	Norwalk River
L2 - Layne 2	Active - in pit	Meter	Gravel Packed	20"	90'	2.2 MGD	3.75 M	50'	Norwalk
D1 Deering 1	Active - in Pit	Meter	Gravel Packed	20'	84'	1.6 MGD			
D2 - Deering 2	Active - in Pit	Meter	Gravel Packed	20"	85'	2.6 MGD			

Info from Dec. 1994 Water Supply Plan 7.75 TOTAL

TREATMENT

TYPE	RATE OF DOSAGE	POINT OF INJECTION	FREQ. OF TESTING	TESTING EQUIPMENT	AMT & TYPE OF CHEM(S)	SAFETY EC
See attached sheets						

DISTRIBUTION

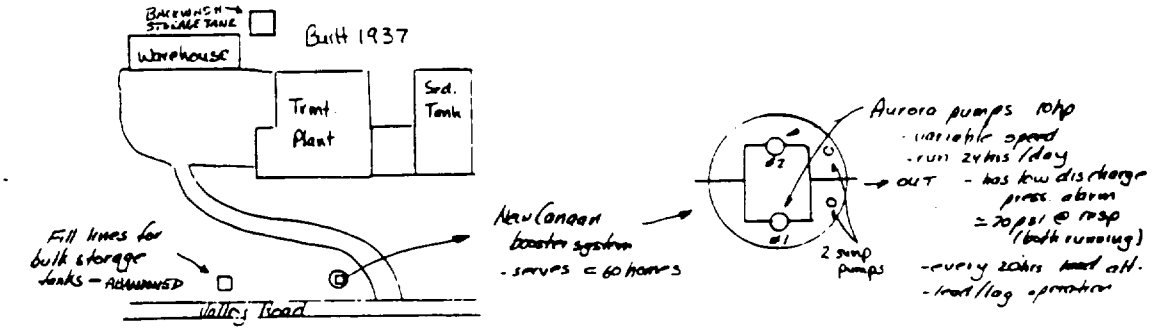
BOOSTER STATION:	EST. POPULAT. SERVED	YEARLY AVE. DAILY CONSUMP. (GPD)	PER CAPITA CONSUMP. (GPCD)	EST. SAFE YIELD OF SOURCES (GPD)	MAXIMUM HOUR DEMAND (GALS.)	GALLONS AVAIL. MAXIMUM HOUR	NUMBER OF SERVICES	NUMBER OF METERS	STORAGE TANKS (QTY/SIZE)	TYPE OF STORAGE (PRESS./ATM.)	TRANSFER PUMPS (QTY/SIZE
Westerly, High & Spring Hill High Service Pump Stns									1/1.75 MG	ATM - Clearwell	1/4.5 M 1/3.6 M
										GAC Filter Plant	1/1.8 M 1/3.0 M
TOTAL	36,502	6.3 M	≈ 164	7.75 MGD	3(6.3) = 2.1 M		≈ 16,000 Residential Total	Not Indicated	1/0.75 MG	Wellfield ATM - Clearwell	2/1.8 MG 1/2.5 MG
West Rocks	7,200 N.R.	1.2 M W.R.			400,000 N.R.	1,217,000	1600 West Rocks		1/0.1 MG	ATM - West Rocks	1/450 GPM
Spring Hill	3,202 S.H.	0.5 M S.H.			175,000 S.H.	206,800	600 Spring Hill				
Main	28,100	4 6M		Total CK	1,525,800	3.7M+ CK			1/1.0 MG	ATM - Baynes St.	1/100 GPM 1/1300 GPM (E
									1/1.0 MG	ATM - Filbert St	
									1/0.1 MG 1/3.0 ME	ATM - Spring Hill ATM - Spring Hill	2/ 500 GPI

COMMENTS:

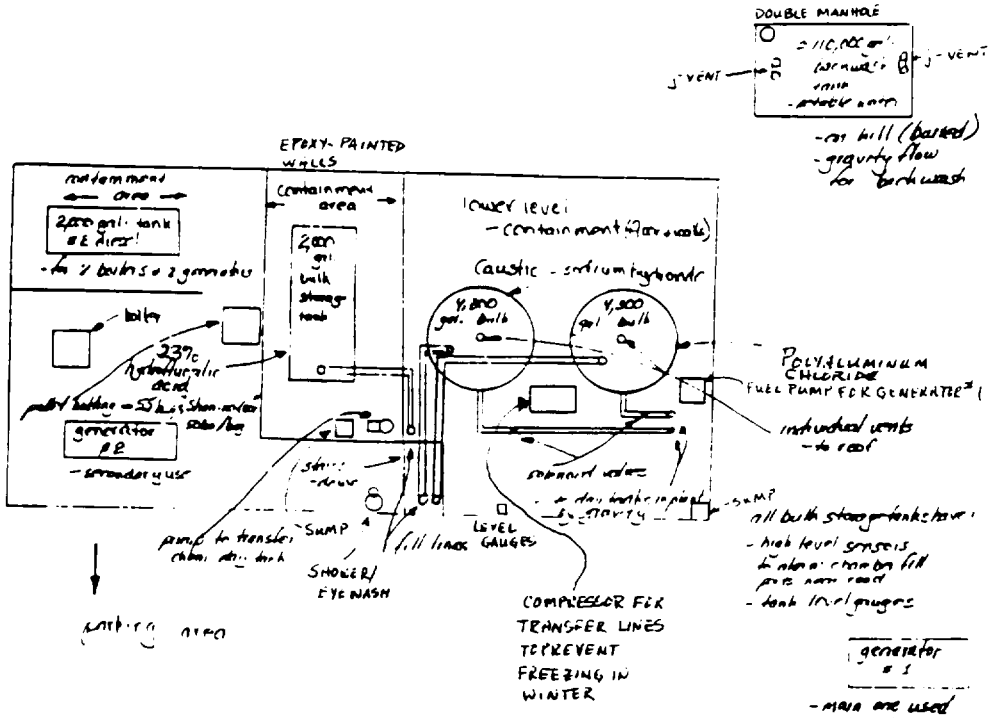
NOT TO SCALE

REVISED — INSPECTED 2/22/10 — CBD.
INSPECTED 2/22/10 J CERA

MILNE LAKE RESERVOIR
FILTRATION PLANT



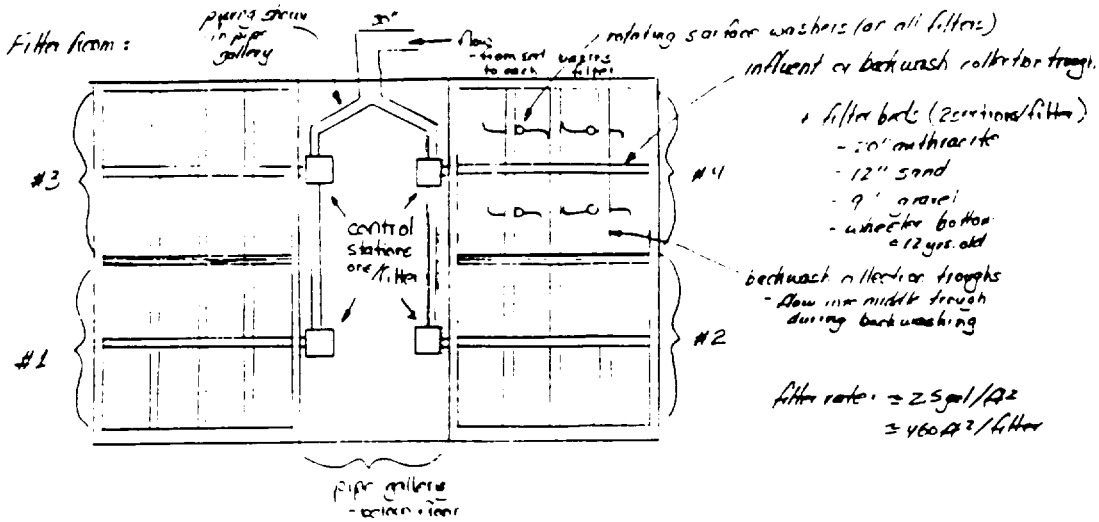
Warehouse:

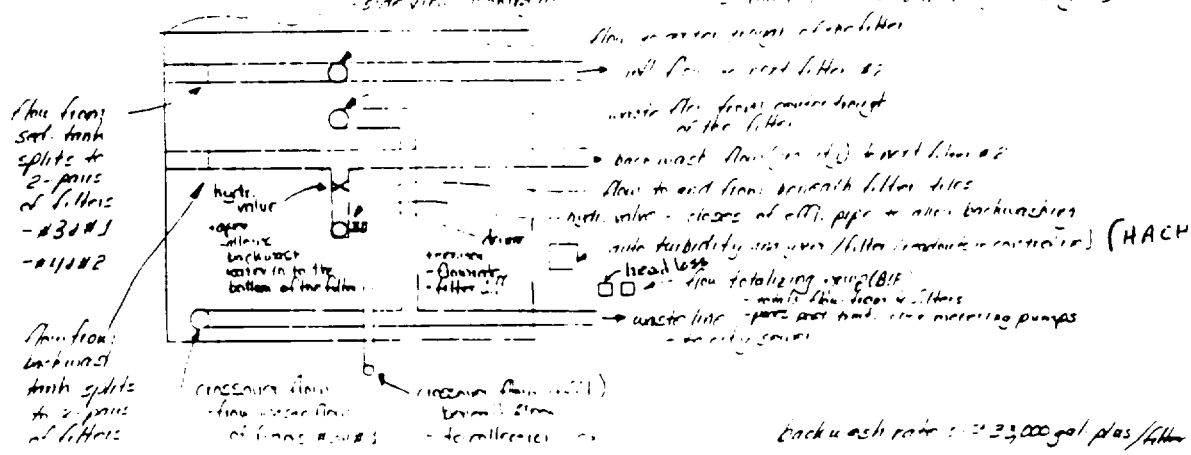


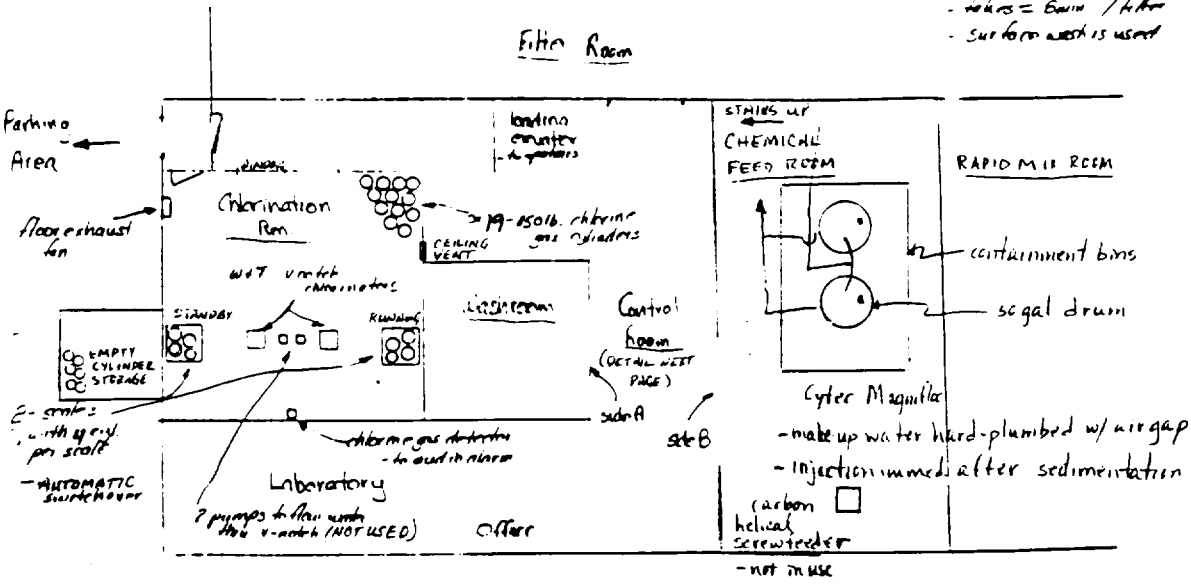
Mineral Wells Testing Facility

NOT TO SCALE

REVISED - INSPECTED 3/22/95 S.R.G.
INSPECTED 2/28/90 J. CRAIG



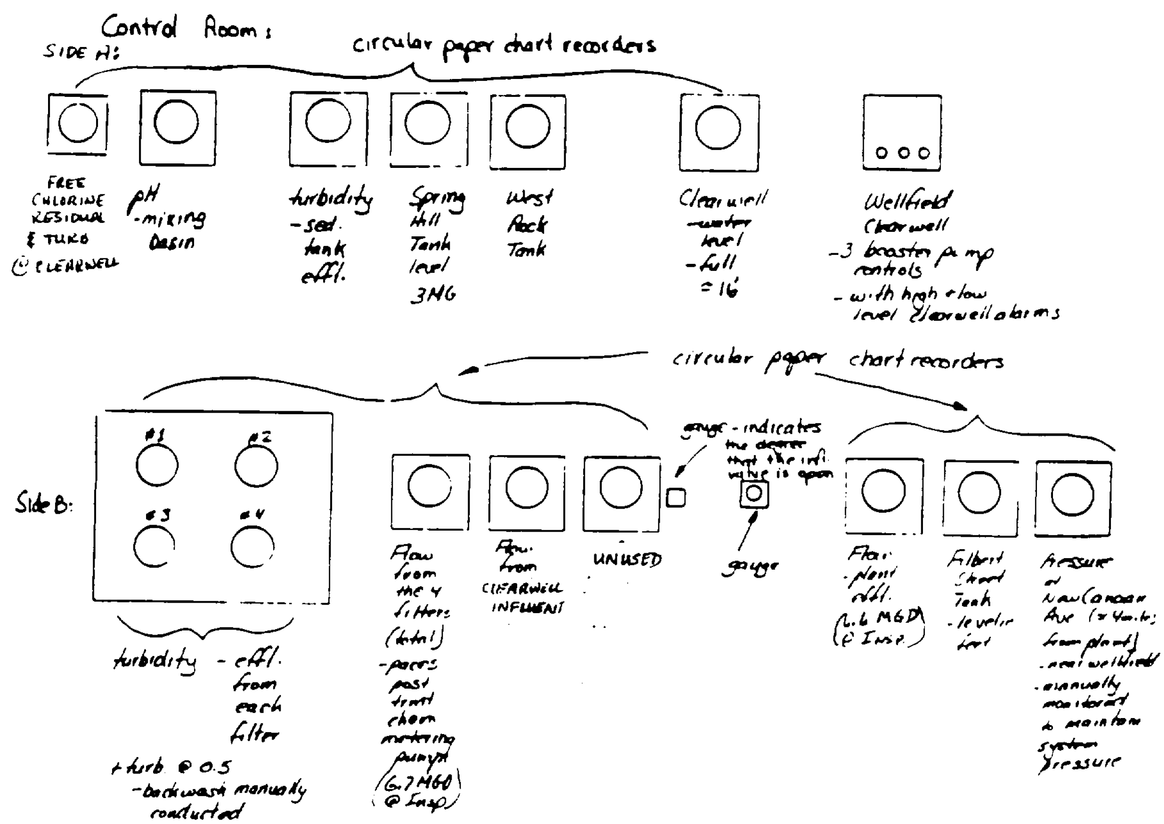




NOT TO SCALE

REVISED [illegible] INSPECTED [illegible]

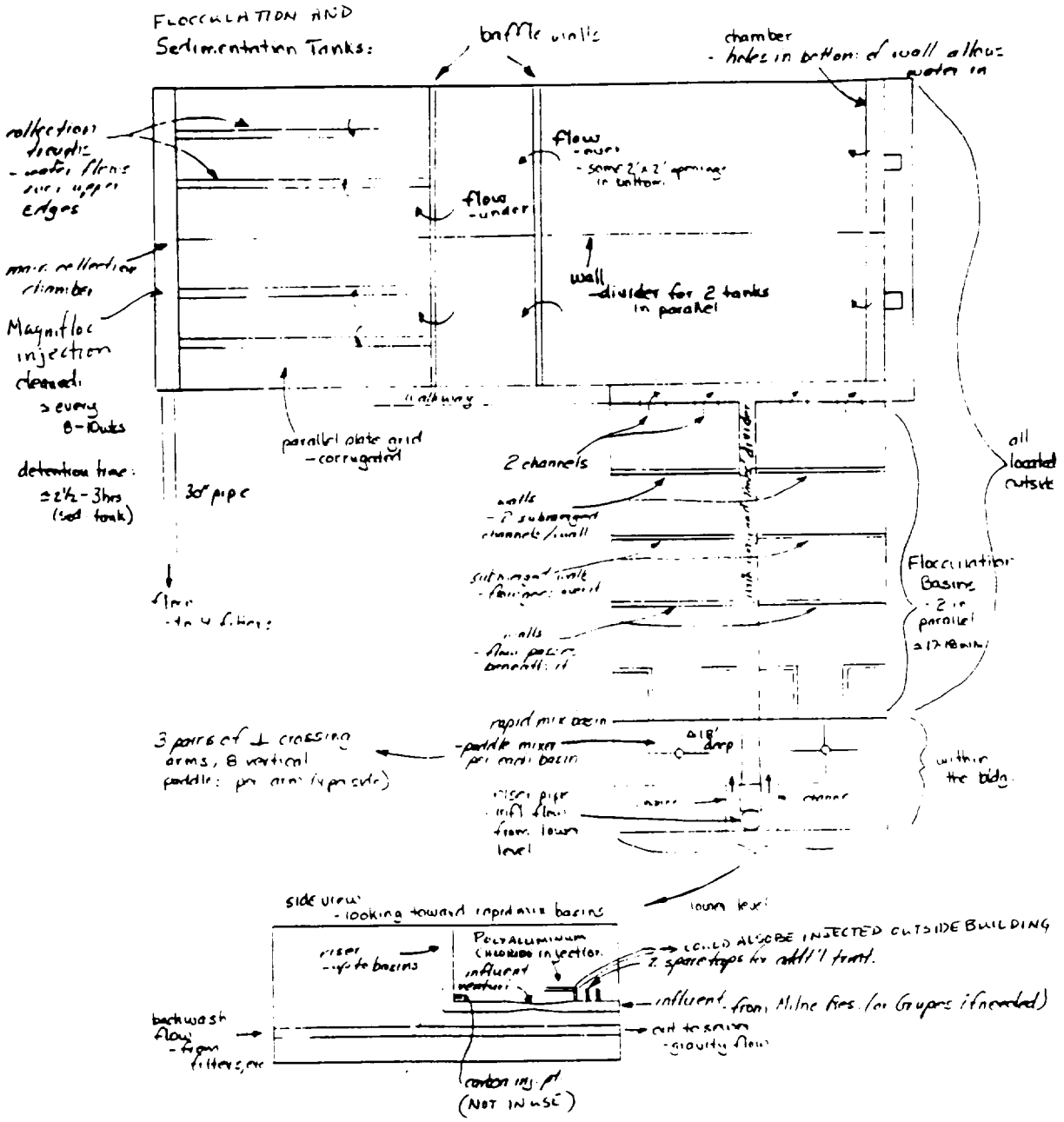
INSPECTED 2/28/90 J. CRASA



NORWALK FIRST TAXING DISTRICT

NOT TO SCALE

REVISED - INSPECTED 3/22/95 S.Ra
INSPECTED 2/28/90 J. CRAIG



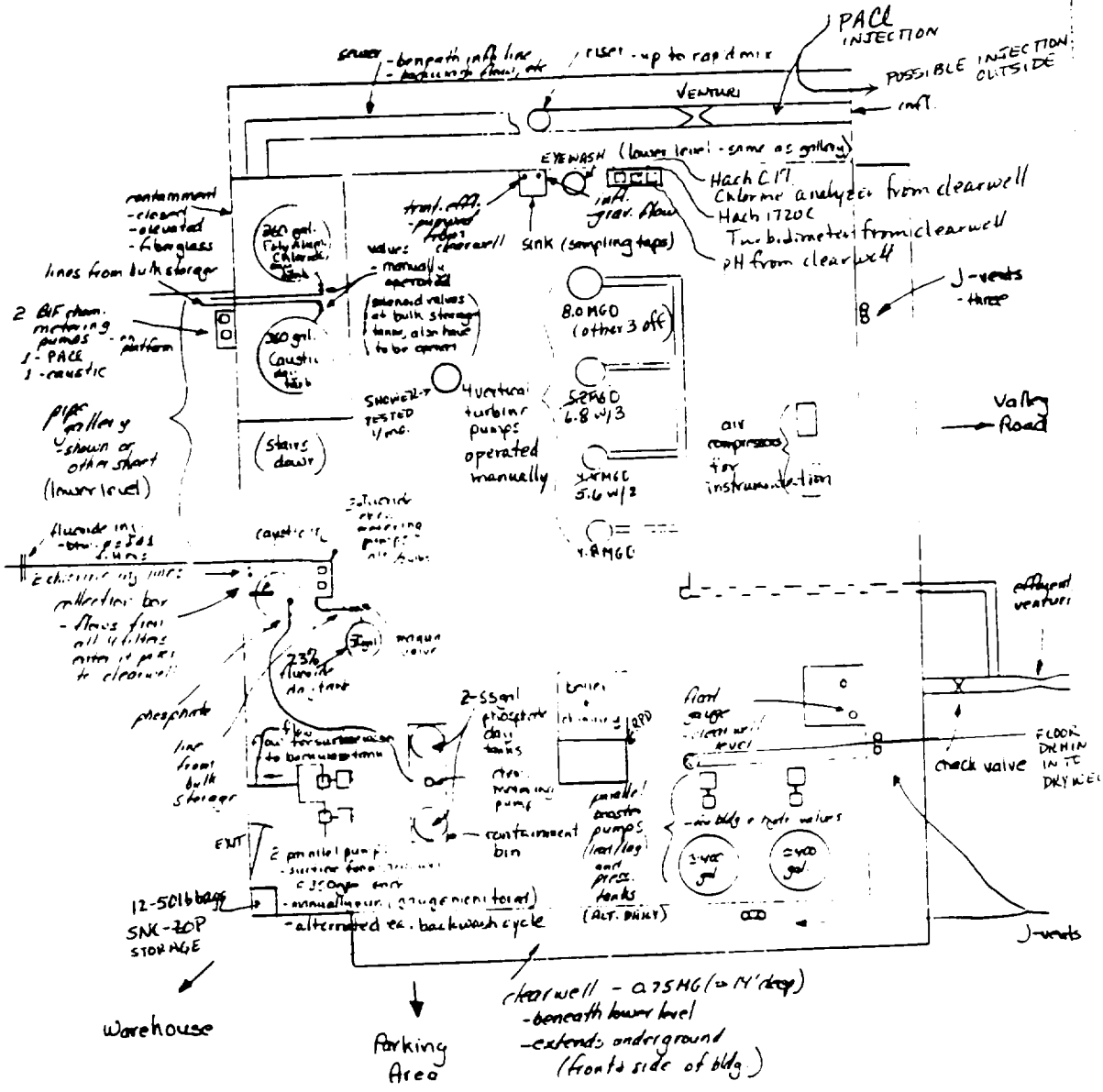
Final Tanking Project - Nantucket

Insp. 1/28/90

John W. Regan PE Engr.

INSPECTED/REVISED 3/22/95 S. Robbins

Treatment - Pump Room:



DATE: 1/25/90 3/22/95 REVISED S. ROBBINS

UTILITY/SOURCE(S): First Taxing District - Norwalk / Hiller Res.

INSPECTED WITH: Bill Lahey

RATE OF WATER FLOW: effluent - 6 MGD @ Insp (based on trmt feed pumps)

STAND BY POWER/CONDITION: 2 GENERATORS - #1 OUTSIDE TESTED WEEKLY AUTOSTART, #2 IN WAREHOUSE, BACKU

phosphate

TYPE OF FEEDER: chem. metering pump
ALTERNATE: spare parts & motor
*RATE OF DOSAGE: (SPECIFY) 4 mg/l
POINT OF INJECTION: collection box - after filters
SAMPLING POINT: trmt. effl sink - clearwell FREQUENCY OF TESTING: BI-WEEKLY
TESTING EQUIPMENT/CONDITION:
SAFETY EQUIPMENT (TYPE & CONDITION): shield, gloves, apron
SCALES: AMT. & KIND OF CHEM. ON HAND: zinc phosphate "Shan-no-corr" 2 - 55 gal day tanks 12 - 50 lb. bags on table in treatment room 55 - 50 lb bags in warehouse
COMMENT: mixer on hand

hydrochloric chloride

TYPE OF FEEDER: BIF CHEMICAL METERING PUMP
ALTERNATE: SPARE PARTS & MOTOR
*RATE OF DOSAGE: (SPECIFY) 10-11 mg/l
POINT OF INJECTION: PLANT INFLUENT PRIOR TO VENTURI METER
SAMPLING POINT: pH MONITORED IN MIXING BASIN FREQUENCY OF TESTING: CONTINUOUS READING IN CONTROL ROOM
TESTING EQUIPMENT/CONDITION:
SAFETY EQUIP. (TYPE & CONDITION): EYE WASH SHOWER GLOVES APRON SHIELD
SCALES: NONE AMT. & KIND OF CHEM. ON HAND: 1500 GAL IN 4300 GAL BULK STORAGE TANK TRANSFERS TO 360 GAL DAY TANK
COMMENT:

Cyan Magnifloc

TYPE OF FEEDER: CHEM. METERING PUMP
ALTERNATE: SPARE PARTS & MOTORS
*RATE OF DOSAGE: (SPECIFY) 0.1 mg/l
POINT OF INJECTION: AFTER SEDIMENTATION FREQUENCY OF TESTING:
SAMPLING POINT:
TESTING EQUIPMENT/CONDITION:
SAFETY EQUIP. (TYPE & CONDITION): GLOVES
SCALES: AMT. & KIND OF CHEM ON HAND: 2 DRUMS
COMMENT: FILTRATION AID - NON IONIC EMULSION POLYMER

GENERAL COMMENTS:

1 DRY CHEM. FEEDER SET-UP FOR CARBON - NOT USED

Comment on Records:

... ... the injector is greater than main press. and there is

Page: ___ of ___

DATE: 2/26/90 3/22/95 S. ECKBAUS REVISED

UTILITY/SOURCE(S): Fred Taxing District - Norwalk / Milne Fire.

INSPECTED WITH: Bill Lahey

RATE OF WATER FLOW: effluent - 6.6 MGD Insp. (prior post trmt. feed pumps)

STAND BY POWER/CONDITION: 2 GENERATORS

Chlorine

TYPE OF FEEDER: parallel chem. meter pumps - only 1 used @ a time - alt. every 2 wks.
ALTERNATE: spare parts + motor
*RATE OF DOSAGE: (SPECIFY) 36 lb/MG ≈ 4.3 mg/L
POINT OF INJECTION: collection chamber between filters #2 and #3
SAMPLING POINT: trmt. effl. - clearwell FREQUENCY OF TESTING: 2x most units
TESTING EQUIPMENT/CONDITION:
SAFETY EQUIPMENT (TYPE & CONDITION): shield gloves apron, SHOWER, EYEWASH
SCALES: none AMT. & KIND OF CHEM. ON HAND: 23% hydrofluosilicic acid
COMMENT: 2,000 gal. bulk storage tank in warehouse
- pumped flow to 50 gal. day tank
(1,500 gal. loads delivered)

Chlorine

TYPE OF FEEDER: parallel W&T 1 notch chlorinators (both in use at same time) - gravity water flow to 1 notch (2 parallel pumps avail. - never used)
ALTERNATE: spare parts (serviced twice/yr.)
*RATE OF DOSAGE: (SPECIFY) 15 lb/MG ≈ 1.8 mg/L
POINT OF INJECTION: 2 inj. lines - into collection box after filters
SAMPLING POINT: trmt effl. sink - clearwell FREQUENCY OF TESTING: CONTINUOUS
TESTING EQUIPMENT/CONDITION: Hach CL17
SAFETY EQUIP. (TYPE & CONDITION): same as above - also 2 spare parts - warehouse + filter rm.
SCALES: 2 scales - 4 cyl. per scale AMT. & KIND OF CHEM. ON HAND: 150 cylinder - chlorine gas
COMMENT: also cylinder repair kit on hand 1 on line
(25 ora. red when down to 1/4 left)
+ Automatic switchover after 5 (values) - all tanks chained in place
- press. gauge monitors

Caustic

TYPE OF FEEDER: BIF chem. metering pump
ALTERNATE: spare parts + motor
*RATE OF DOSAGE: (SPECIFY) 7.5 mg/L
POINT OF INJECTION: collection box
SAMPLING POINT: trmt. effl. sink - clearwell FREQUENCY OF TESTING: CONTINUOUS
TESTING EQUIPMENT/CONDITION: pH - Hach probe (calibrated daily)
SAFETY EQUIP. (TYPE & CONDITION: same as above
SCALES: none AMT. & KIND OF CHEM. ON HAND: sodium hydroxide 50%
COMMENT: 300 gal. bulk storage tank in warehouse
- gravity flow to 360 gal. day tank
(2,500 gal. loads delivered)

GENERAL COMMENTS:

Comment on Records:

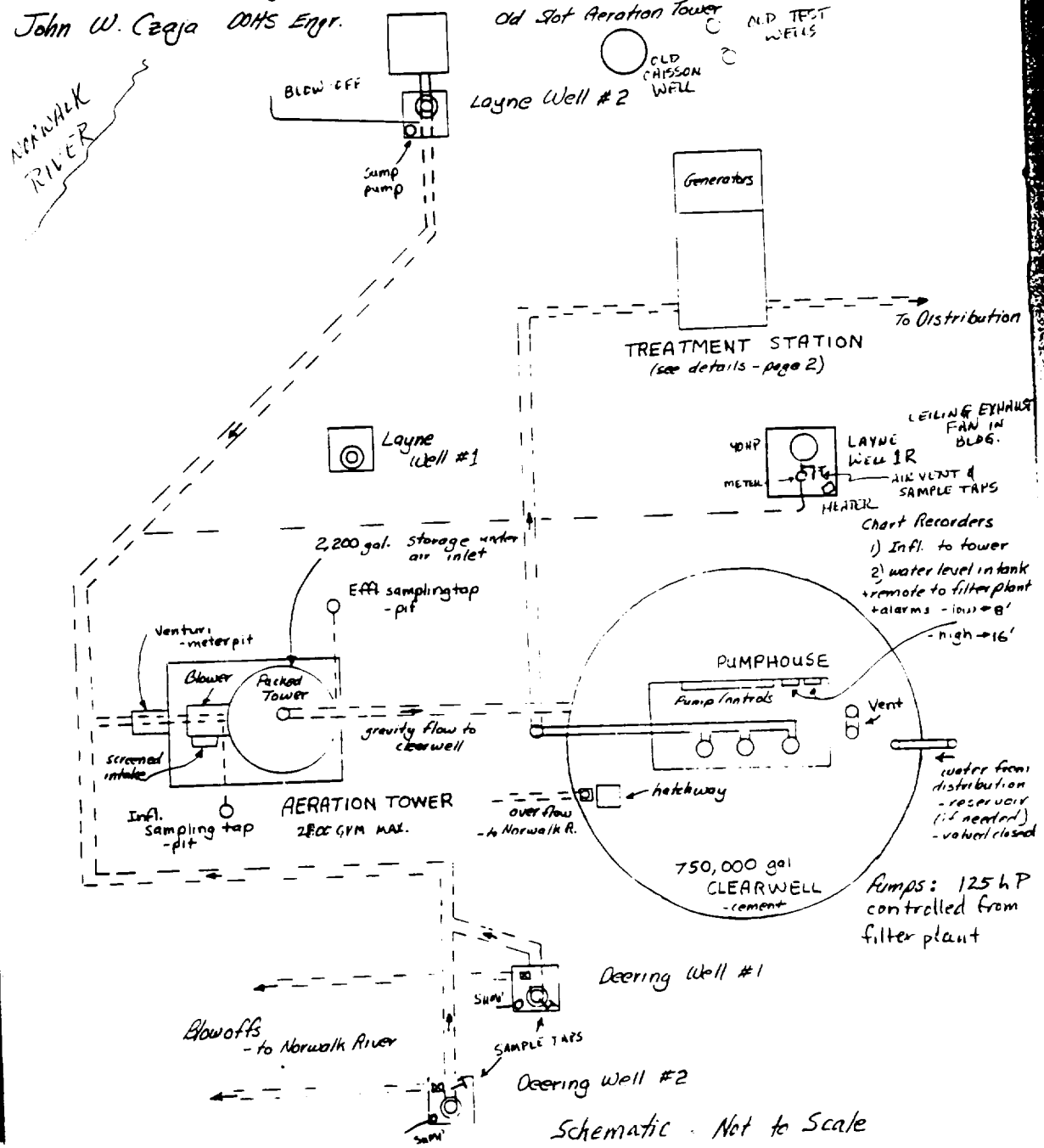
- ... also influent is greater than main press. and there is

9-6-88
REVISED 4/5/95 S. ROBBIN

①

Norwalk - First Taxing District

John W. Czaja DPHS Engr.



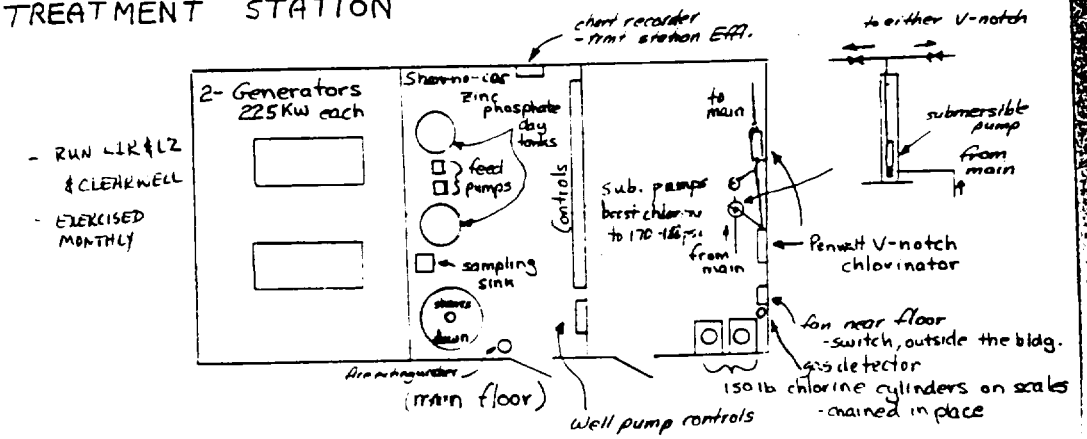
Schematic - Not to Scale

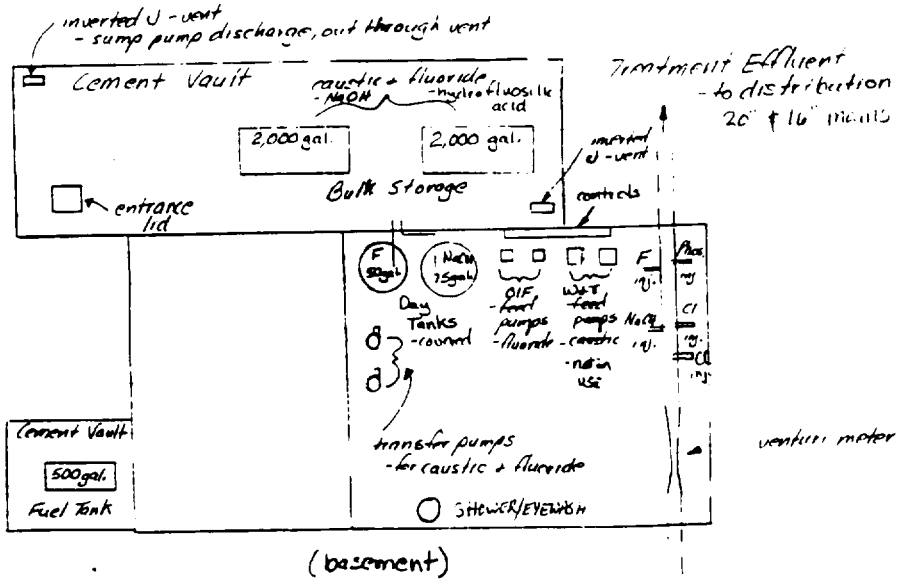
9-6-88

(2)

Norwalk - First Taxing District
John W. Czaja DOHS Engr.

TREATMENT STATION





4-3/75

9-6-88

Page: 1 of 3

Layne #R

UTILITY/SOURCE(S): Norwalk - First Taxing District / Layne #2 and/or Deering #1 & #2 (blend)

INSPECTED WITH: Franco Chiesfalo and Bill Lahey

RATE OF WATER FLOW: vertical turbine → 1.8 MGD or 2.5 MGD - from clearwell

STAND BY POWER/CONDITION: yes / 2 diesel 225 KW each / good (under service contract)
- will power everything except Deering #1 & #2

chlorine

TYPE OF FEEDER: PENWALT V notch 2 on hand
ALTERNATE: parts
***RATE OF DOSAGE: (SPECIFY)** 7.5 lbs / MG 0.9 ppm
POINT OF INJECTION: basement of treatment station - after flow venturi
SAMPLING POINT: sink @ trmt station - from dist. **FREQUENCY OF TESTING:** daily
TESTING EQUIPMENT/CONDITION: was not checked
SAFETY EQUIPMENT (TYPE & CONDITION): Scott air pack - pres. type @ filter plant, gas detector
SCALES: yes - each cyl on separate scale **AMT. & KIND OF CHEM. ON HAND:** 2 - 150 lb. cylinders
COMMENT:
Fan turns on with exterior switch, fan mounted on wall near floor - OK

fluoride

TYPE OF FEEDER: (2) - B/F - proportional to flow, paced on flow meter in station
ALTERNATE: parts
***RATE OF DOSAGE: (SPECIFY)** [illegible]
POINT OF INJECTION: same as above
SAMPLING POINT: same as above **FREQUENCY OF TESTING:** daily
TESTING EQUIPMENT/CONDITION: tested @ filter plant
SAFETY EQUIP. (TYPE & CONDITION): Gloves, apron, mask, shower, eyewash, steel tank - rubber lined
SCALES: day tank on balance scale **AMT. & KIND OF CHEM. ON HAND:** 2000 gal bulk storage, 50 gal. day tank
COMMENT:
25% hydrofluosilic acid (no dilution)

SHAN-NO-CORR zinc-polyphosphate

TYPE OF FEEDER: 2 - [illegible] - prop. to flow [illegible]
ALTERNATE: parts
***RATE OF DOSAGE: (SPECIFY)** 2 ppm 10 mg/l max
POINT OF INJECTION: same as above
SAMPLING POINT: same as above **FREQUENCY OF TESTING:** bi-weekly
TESTING EQUIPMENT/CONDITION:
SAFETY EQUIP. (TYPE & CONDITION): GLOVES APRON MASK
SCALES: **AMT. & KIND OF CHEM ON HAND:**
COMMENT: MAKE UP WATER HARD-PLUMBED - AIR GAP

GENERAL COMMENTS:

Comment on Records:

Chlorine Gas: Check to see that injector is greater than main press. [illegible] Cl gas cylinder press. Check cylinder arrangement.

* Specify type of rate of dosage, instantaneous, daily, weekly, etc. [illegible]

4/5/[illegible]

INSPECTION OF
AIR STRIPPING/GAC FILTRATION/PRESSURE FILTRATION FACILITIES

Date: [illegible]

UTILITY: Norwalk First District Water Dept.
INSPECTED WITH: Franic Chieffalo & Bill Lahey INSPECTED BY: S. Robbins
STANDBY POWER/CONDITION: yes/good FREQUENCY EXERCISED/UNDER LOAD: under service contract twice/year

AERATION TOWER

COLUMN HEIGHT: 36' WIDTH: 11' PACKING DEPTH: 23'
TYPE OF PACKING: No. 1 Jaeger Tripacks PROPER SCREENING: yes
TYPE/SIZE OF BLOWER (cfm/Quantity): 29,000 cfm
RATE OF WATER FLOW: approval given 10-11-88 for 2600 gpm
MAXIMUM RATE OF WATER FLOW (Design): 2800 GPM AIR TO WATER RATIO: 77.5 : 1
CHLORINATION POINT: after clearwell SAMPLING LOCATION: infl. and effl. at tower
CLEARWELL SIZE: 750,000
BOOSTER PUMPS CAP./QUANTITY: 2-2.8 MGD and 1-2.5 MGD
COMMENT: tower looked in good condition (levels of VOC's are low)

GAC/PRESSURIZED FILTER

TYPE OF FILTER:
CARBON: MANUFACTURER: CARBON MEDIA I.D. NO.
PREFILTER/DESCRIPTION:
RATE OF WATER FLOW: MAXIMUM RATE OF WATER FLOW (Design):
AMOUNT OF MEDIA (ft^3): SURFACE AREA OF FILTER (ft^2):
CONTACT TIME (Max.): (Min.):
FLOW RESTRICTION DEVICE:
FILTER FLOW SCHEMATIC (include source, filters, sampling tap, meters and storage):

FREQUENCY OF MEDIA REPLACEMENT: DATE OF LAST MEDIA REPLACEMENT:
HOW IS MEDIA REPLACEMENT DETERMINED:
BACKWASH CAPABILITIES (Yes/No) FREQUENCY:
BACKWASH RATE: WHERE DISCHARGED:
DEP DISCHARGE PERMIT #:
SAMPLING LOCATION: SAMPLING FREQUENCY (Filter Effl.):
COMMENT:

PK/ch (ee)

0015

HYDRO GROUP, INC.
ENVIRONMENTAL PRODUCTS DIVISION

Packed Column Air Stripper
Production Specifications

I. Customer's Name: First Taxing District Water Dept
Installation Location: Norwalk, CT
Customer Order Number: Contract W3-84B

II. Hydro Group Production Number: 2342-86

III. Column:

1. Drawing Number: 16B1554
2. Capacity: 1750 gpm
3. Size: 11' dia x 36' high
4. Inlet Pipe Size: 12" Outlet Pipe Size: 12"
5. Material: 6061-T6 Aluminum
6. Remarks:

IV. Packing:

1. Type: No. 1 Jaeger Tripacks
2. Nominal Size: 2"
3. Packing Depth: 23'
4. Packing Material: Polypropylene
5. Packing Support Type: Fiberglass grid

V. Liquid Distributor:

1. Distributory Type: Drilled orifice
2. Redistributor: Ring type

VI. Blower:

1. Make & Mode: Barry Blower, Model 445 VCR
2. Capacity: 3,400 CFM @ 4" SP
3. Motor: 20 HP, 230/460 Volt, 3 ph 60 cy
4. Type of Motor: ODP
5. Electrical Control: Interconnected with well pump

VII. Anchoring Arrangement:

1. Type: Single base ring
2. Number of Bolts: 24 @ 3/4" dia

VIII. Mist Eliminator:

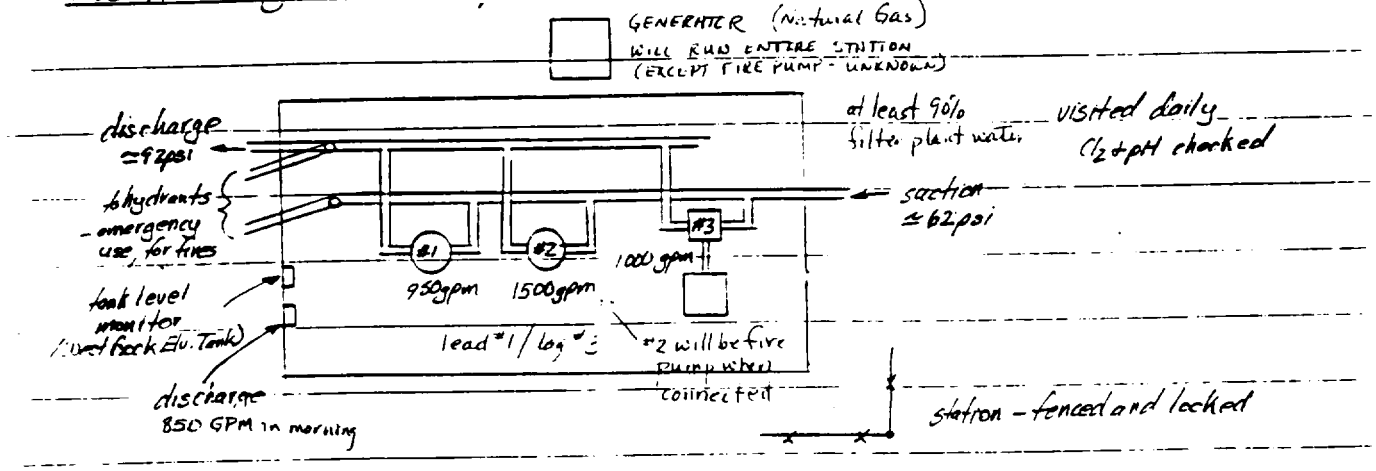
1. Type: Polypropylene mesh pad with 304 grids
2. Thickness: 6"

REVISED 4/5/95 S. ROBBINS

Norwalk First District Water Department — Insp.: 9/16/92

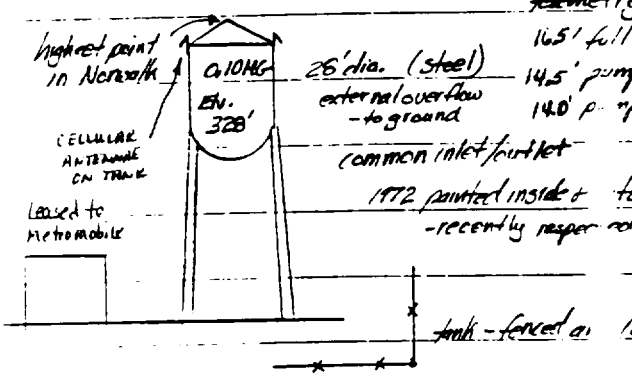
John W. Czapa - DHS, Engr.

West Rocks High Service Pump Station:

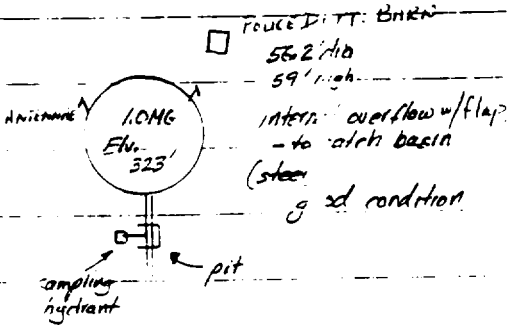


both tanks serve West Rocks High Service zone

West Rock Elevated Tank:



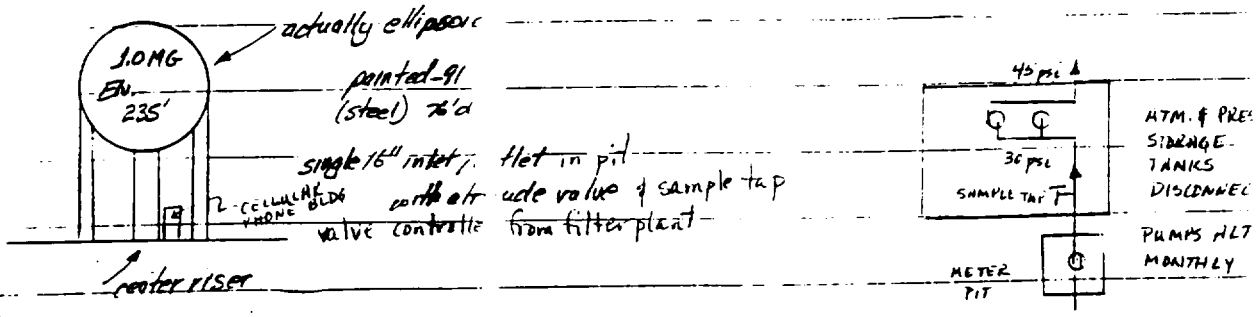
Bayne Street Standpipe:



Elbert Street Tank (Water Ave):

low pressure zone

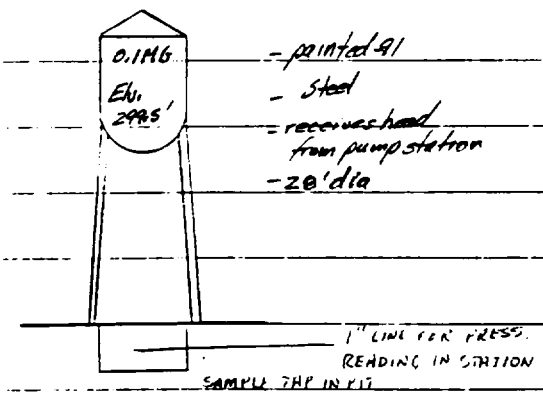
SILVERMINE CROSSING CONDO



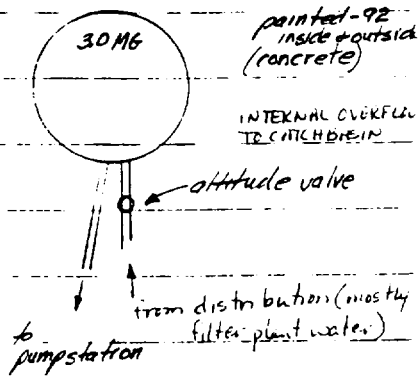
Norwalk First District Water Department

REVISED 4/5/93 S ROBBINS
Insp. 9/16/92
John W. Geoga - OHS, Engr

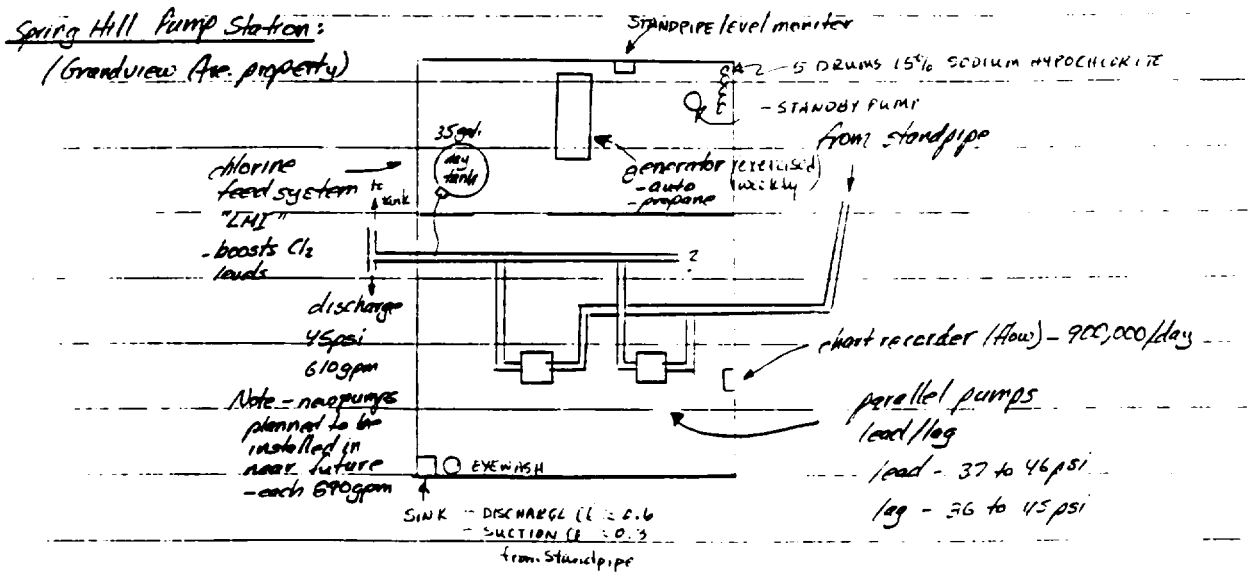
Spring Hill Elevated Tank:
(high pressure zone)



Spring Hill Standpipe:
(low service zone)



Spring Hill Pump Station:
(Grandview Ave. property)



IF RESID. IS < 0.3 @ FARTHEST POINT IN DISTRIB., CHLORINE IS FED. TIED ELECTRICALLY TO PUMPS

Schematic - Not to Scale

INSPECTION OF A WATER TREATMENT FACILITY

Page ___ of ___

Date : ________

UTILITY/SOURCE(S): Norwalk First Tax District — Spring Hill Pump Station

INSPECTED WITH: Franco Chieffalo

RATE OF WATER FLOW: 850 GPM

STAND BY POWER/CONDITION: LP Generator / Good   Will run both pumps

TYPE OF FEEDER: LMI Chemical Metering Pump
ALTERNATE: Parts in station
*RATE OF DOSAGE: (SPECIFY) Solution 50/50 ≈ 0.8 mg/l
POINT OF INJECTION: Station discharge line
SAMPLING POINT: Sink in station   FREQUENCY OF TESTING: Daily
TESTING EQUIPMENT/CONDITION:
SAFETY EQUIPMENT (TYPE & CONDITION): Eyewash Gloves
SCALES: None   AMT. & KIND OF CHEM. ON HAND: 15% Sodium Hypochlorite
COMMENT: 35 gal day tank with mixer   5-55 gal drums on hand

TYPE OF FEEDER:
ALTERNATE:
*RATE OF DOSAGE: (SPECIFY)
POINT OF INJECTION:
SAMPLING POINT: FREQUENCY OF TESTING:
TESTING EQUIPMENT/CONDITION:
SAFETY EQUIP. (TYPE & CONDITION):
SCALES: AMT. & KIND OF CHEM. ON HAND:
COMMENT:

TYPE OF FEEDER:
ALTERNATE:
*RATE OF DOSAGE: (SPECIFY)
POINT OF INJECTION:
SAMPLING POINT: FREQUENCY OF TESTING:
TESTING EQUIPMENT/CONDITION:
SAFETY EQUIP. (TYPE & CONDITION):
SCALES: AMT. & KIND OF CHEM ON HAND:
COMMENT:

GENERAL COMMENTS:

Comment on Records:

[illegible] Check to see that injector is greater than main press. [illegible]